

IN THE DRAWINGS:

Please replace the present drawing sheets containing Figs. 1 and 3 with the replacement sheets submitted herewith. Marked up copies of the present drawing sheets showing the changes are also submitted herewith. The changes are made to comply with the Examiner's requirement in the Official Action of April 21, 2006 as discussed *infra*.

REMARKS

Applicant's Statement of Substance of Interview.

Applicants wish to express appreciation to Examiner Samir A. Ahmed for the courtesy of an interview which was granted to Applicant's representative Michael Faibisch (Reg. No. 48,427). A personal interview was conducted at the USPTO on June 28, 2006. The substance of the interview is set forth in the Interview Summary, numbered Paper No. 20060628. During the interview, the following issues were discussed: Examiner's rejection under 35 U.S.C. 112; the Kaminsky prior art as applied to the independent claims; and a proposed amendment. The Examiner clarified his rejection of claims 26 and 69 under 35 U.S.C. 112. No agreement was reached.

General Remarks

Claims 1 – 28 and 44 – 71 are pending in the application. Claims 29 – 43 and 72 – 87 are canceled herewith without prejudice or disclaimer. Claims 1, 8, 24-27, 44, 51 and 67-70 are currently amended to include the self-explanatory amendments shown above. No impermissible new matter has been added.

Applicant has carefully studied the outstanding Office Action in the present application. The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Corrections to the Drawings

The drawings are objected to as failing to comply with 37 C.F.R. 1.84(p)(4) because reference character “29” has been used in Fig. 1 to designate two different outputs. A corrected drawing sheet for Fig. 1, along with an annotated version thereof pointing out the proposed drawing changes, is submitted herewith.

The Applicants have additionally submitted herewith a formal drawing sheet for Fig. 3. An annotated version of the original drawing sheet for Fig. 3, showing the informalities that are remedied in the formal drawing sheet, is additionally submitted herewith.

Claims Rejections under 35 U.S.C. §112

Claims 26 – 28 and 69 – 71 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement because the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention at the time the application was filed. The Applicants respectfully traverse this rejection as applied to each rejected claim.

The Examiner admits at page 4 of the Office Action that the “specification as originally filed is enabling for applying the enhanced contrast representation 146 in Fig. 3 to the output of a third image (red image) of the circuit board convolved with a Laplacian of a Gaussian function 162 in Fig. 3 to provide an enhanced representation 29 for use in inspection”. However, as advanced by the Examiner, “the specification as originally filed is not enabling for any third representation of the electrical circuit as recited in the claim.”

Applicants respectfully point out that Fig. 3 describes a preferred embodiment. The

description of Fig. 3 does not include language specifically limiting the invention to the embodiment described. Moreover, nothing in the written description makes it crystal clear that the particular understanding attributed to the term “third representation” by the Examiner, namely that it is a red image convolved with a Laplacian of a Gaussian function, for the purpose of limiting claims 26 and 69, is an essential element of the invention. Applicants respectfully submit that claims 26 and 69 are fully supported by Fig. 1 and the description thereof, *inter alia*, which show an enhanced contrast representation 27 being applied to a third representation (e.g. the digital image output 22) and that there is nothing in Fig. 1, or elsewhere in the application, necessarily requiring the digital image output 22 to be convolved with a Laplacian of a Gaussian function.

In the absence of language in the written description specifically limiting the third representation to being a red representation convolved by a Laplacian of a Gaussian, as noted above, in view of support for claims 26 and 69 found in Fig. 1 and Fig. 3, *inter alia*, these claims need not be further limited by the description of a particular preferred embodiment. In view of the foregoing, Applicants respectfully request that the Examiner withdraw this rejection under 35 U.S.C. §112 of claims 26 and 69, and their respective dependent claims 27 – 28 and 70 – 71, respectively, each of which is patentable at least by virtue of its dependency from a patentable main claim.

Prior Art Rejections

Claims 1 – 4, 6 – 25, 31, 34 – 47, 49 – 68, 74 and 77 – 87 stand rejected under 35 U.S.C. 102(a) as being anticipated by Kaminsky et al. (WO 00/11454). Claims 26 – 27 and 69 – 70 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kaminsky

et al. (WO 00/11454) and Colvin (US 5,970,167). Claims 28 and 71 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kaminsky et al. (WO 00/11454), Colvin (US 5,970,167) and Bishop (US 6,603,877). The Applicants respectfully traverse these rejections as applied to each rejected claim.

Kaminsky et al. shows and describes a method of analysis of a printed circuit board comprising generating an image of the printed circuit board and determining the presence of an oxide from an analysis of the image. Colvin shows and describes a method and apparatus for analyzing failures in integrated circuits using color voltage contrast. Bishop shows and describes a method of and apparatus for optical imaging inspection of multi-material objects and the like.

Applicant has amended claims 1 and 44 which now include the limitations of “generating a first representation of said electrical circuit from said first image data independently of said second image data” and “modifying said first representation by employing said second image data thereby to produce an enhanced representation of the electrical circuit”. Nothing in Kaminsky shows or suggests generating a first representation from first image data independently of second image data, or modifying the first representation by employing second image data. In Kaminsky, first and second image data (for example images from different spectral ranges) are acquired and pixels from the respective images are combined in accordance with rules to provide an image that is suitable for detecting oxidation. In Kaminsky this process proceeds without generating a first representation from first image data and then modifying the first representation by employing second image data, as required by claims 1 and 44.

In view of the foregoing, the Examiner is respectfully requested to withdraw the rejection under 35 U.S.C. 102(a) of independent claims 1 and 44, and of their respective dependent claims 2 – 25 and 45 – 68, respectively, each of which is patentable at least by virtue of its dependency

from a patentable main claim.

With respect to claims 29 – 43 and 72 – 87, these claims have been canceled without prejudice or disclaimer, thus obviating the rejection of these claims.

With respect to independent claims 26 and 69, these claims are currently amended to clarify that the first image data, the second image data, the enhanced contrast representation, and the third representation correspond to an electrical circuit to be inspected.

As noted by the Examiner, Kaminsky does not disclose applying the enhanced contrast representation to a third representation of the electrical circuit to provide an enhanced representation for use in inspecting the electrical circuit for defects. This deficiency of Kaminsky is not remedied by Colvin because one of the three images used by Colvin is obtained from an integrated circuit that is different from the integrated circuit used to obtain the other images (see col. 7, line 56 – col. 8 line 1). Thus, the combination of Kaminsky and Colvin fails to show or suggest applying the enhanced contrast representation of the electrical circuit to be inspected to a third representation of the electrical circuit to be inspected to provide an enhanced inspection representation of the electrical circuit to be inspected for use in inspecting the electrical circuit to be inspected for defects.

In view of the foregoing, the Examiner is respectfully requested to withdraw the rejection under 35 U.S.C. 103(a) of independent claims 26 and 69, and of their respective dependent claims 27 – 30 and 70 – 73, respectively, each of which is patentable at least by virtue of its dependency from a patentable main claim.

In view of the foregoing, all of the claims are deemed to be allowable. Favorable reconsideration and allowance of the application is respectfully requested.

Conclusion and Request for Interview

In view of the foregoing, this application is believed to be in order. Reconsideration and allowance of this application are respectfully solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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